MONOGRAPH

THYROTOMY,

FOR

THE REMOVAL OF LARYNGEAL GROWTHS,

MODIFIED.

BY

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To

GILMAN KIMBALL, M. D.,

WHO HONORS HIS PROFESSION

BY HIS SKILL AND SUCCESS IN THE MOST CAPITAL OPERATIONS,

THIS CONTRIBUTION TO SURGERY

IS

Respectfully Dedicated.

THYROTOMY,

FOR THE REMOVAL OF LARYNGEAL GROWTHS, MODIFIED.

By Ephraim Cutter, M.D., Woburn, Mass.

After a laryngeal growth has been diagnosticated by the use of the laryngoscope, its removal by intra-laryngeal surgery is sometimes impossible, or unpreferable to its ablation by laryngotomy, or (as it is sometimes termed) thyrotomy. The reasons are as follows: (1.) From the inducability of the patient, arising from natural causes, as extreme youth, a small throat, pendent epiglottis, obstinate tongue, and a hyperæsthesia of the tissues. (2.) From the want of time to conduct an education of the throat, as in cases when suffocation is impending. (3.) From the physical characters (size and consistency), site, and mode of insertion (thyroid extremity of the vocal cords, under surface of ditto), and the degrees of interstitial development into the substance of the normal tissues.

Thyrotomy is preferable from the ease, certainty, and despatch with which growths can be removed, when the larynx is opened vertically in the median line. This section discloses at once, with clearness and precision, the seat and character of the growth, and generally gives a very different appearance from that obtained by the laryngoscope. The certainty and cleanness of

the removal is at the maximum, as the best possible opportunity is given for the scissors method, which, on account of its peculiar mode of severance, is well adapted to prevent hemorrhage.

The despatch of the entire removal is an agreeable offset to the intra-laryngeal method, which, under favorable circumstances, consumes a long and variable period of time in education and operation, and even then is not always thorough.

METHOD OF PERFORMING THE EXTRA-LARYNGEAL OPERATION.

The ordinary plan is first to perform tracheotomy, to introduce a tracheotomy tube, to allow the patient to become accustomed to it, and then, at a subsequent period, some days or weeks later, to perform thyrotomy, and remove the growth.

Tobold (Beard's translation. N. Y., W. Wood & Co., 1868, p. 235) says, "The immediate opening of the thyroid cartilage, without previous tracheotomy, has not, to my knowledge, been attempted as yet for the extirpation of polypi. Indeed, laryngologists who are acquainted with the great irritability of the parts of the larynx would not regard such a procedure favorably, because even a momentary paroxysm of suffocation, in the midst of such an operation, would be a very unpleasant and disturbing complication. Therefore, both for the life of the patient, and on account of the disturbing accidents, and the difficulties thereby increased, in undertaking the division of the cartilage and extirpation of the tumor, *we should precede the operation by making an artificial external opening below the vocal cords*, and then the most that we can do is to take into consideration the propriety of an immediate opening of

the thyroid cartilage, if the general health and the physical condition of the patient allow. *At all events is this method, that has been used until now, to be preferred to first opening the thyroid cartilage.*" . . .

There is an important modification in the method of performing this operation, which, as it was first practised by myself (according to the best of my knowledge), and, subsequently, by Dr. P. W. Ellsworth, of Hartford, Ct., may, perhaps, deserve the appellation of the *American* method.

It simply consists in the *total abandonment of the previous or contemporaneous operation of tracheotomy and the use of the tracheotomy tube.* The reasons for abandoning these features are, —

First. It reduces the procedure to *one operation*, namely, laryngotomy. Thus it is simplified by a less amount of surface severed and by doing away with the suffering and irritation of the tracheotomy tube, and its accompaniments. The operation is completed in one act, and thus shortens suspense and anxiety.

Second. It is the dictate of common sense that when the larynx is obstructed by a growth, if that growth be removed, the calibre of the larynx will be increased. More space will be afforded for the air to pass, *simply because there is more room.* The respiration is made easier instead of more difficult. What, then, is the need of the tube? If viable respiration could be performed before the growth was removed, it certainly would be improved by taking it away.

Third. If it is asserted that the use of the tube is to prevent the hemorrhage from going down the trachea into the lungs, it may be said that unless the tube is large enough to fill the trachea completely (and such are not common), the blood would flow down between the tube and the parietes of the trachea and produce the same difficulty. When the modified operation is per-

formed, the larynx is not to be opened until the external hemorrhage has been stayed; then all the subsequent hemorrhage must come from the internal surface. If this is considerable it may be checked by persulphate of iron topically applied. But the use of scissors is not followed by a very great hemorrhage, and practically the large opening in the larynx allows of the free escape of whatever blood may have flowed into the bronchi. Case II. shows that the larynx may be opened with safety even before the profuse flow of blood is stanched.

Fourth. The tracheotomy tube may be kept on hand as a reserve. Should the subsequent inflammation be so severe in its results as to endanger life, it will then be advisable to employ the tube. Indeed, this is, in my opinion, its only legitimate use in this operation.

Such were the reasons that actuated the writer in preferring the modified operation. It has already stood the practieal test of *eight* operations, which were undertaken solely for the removal of growths from the larnyx, and whieh are reported below.

RESUME OF THE OPERATIONS.

Articles required.— (*a.*) A chair,

Fig. I.

capable of being turned back and held firm by assistants.

Fig. II. represents a special contrivance for a child. It is a simple pine board, made to fit the bends of the

Fig. II.

body and lower limbs. It is mounted on the edge of a box, which is secured by being screwed to the floor, or weighted. It is held to any point by the rod.

(*b.*) Scalpels and directors, scissors curved on the flat and edge, (*c*) two pairs of double-tined hooks. For-

Fig. III.

ceps, dissecting, artery, curved, pointed, serrated; sponge, silk or metallic sutures; porte caustic, tracheotomy tube as a reserve.

(*d.*) *Medicinal agents.* — Ether, wine, ammonia, liq. ferri persulphatis, U. S. P., ice, adhesive straps, hot water evaporated.*

(*e.*) Several good assistants.

* This may be done by putting two quarts of water into a firkin, and throwing in hot iron or stones, or by evaporating water from a broad shallow pan placed on a stove.

METHOD OF PERFORMANCE.

Select a well-lighted room, provided with a bed. Place the patient, previously etherized, in the chair (Fig. I.) or special apparatus (Fig. II.) and, if found necessary, secure by straps passing around the body and chair. The head and body are then adjusted to the desired position, and maintained there by the assistants. An incision is made through the integument in the median line from the hyoid bone to the second or third tracheal ring. With the handle of the knife, the director, forceps and fingers, the cricoid cartilage, the crico-thyroid membrane, the thyroid cartilage and the thyrohyoid membrane are thoroughly denuded in front. Those blood-vessels that require it are now secured, and the oozing wholly stanched before the section of the larynx is completed. If the thyroid cartilage is not ossified, the blade of the curved-on-edge scissors, which is concave, is introduced through the crico-thyroid membrane in the median line until it is buried within the larynx. The handles are then brought towards the neck, and the section of the thyroid cartilage is made simply by closing the scissors. When the cartilage is ossified, the section is made in the same manner by a pair of bone forceps. (Fig. IX.) Some authors recommend the knife or probe-pointed bougie for the section of the cartilage, but the scissors-method has the advantages of opening the larynx with only one motion, and of entering and filling the puncture as it penetrates, so that no communication with the outside is made until the cut is produced. The scissors-cut is easily controlled as to length, and the direction is gauged by the plane of the handles, which are directly under the eye. There is not that liability to a lateral twist, or a deviation from the one exact desired line, to preserve the vocal cords, namely, the median line.

Having made the section of the larynx, the severed edges of the thyroid cartilage are held apart by the two-tined hooks, one tine being placed above the vocal cord, and one tine below. The growth is then removed by forceps and scissors. The patient must be allowed to cough, and the opening maintained patent for the purpose of breathing and discharging the blood and secretions. The anæsthesia should be maintained through the artificial opening. The oozing may be stanched by small cubes of sponge held in forceps, and kept clean by a special assistant. Great care should be taken to have the whole growth thoroughly removed. There should be no hurry, no doubt. After the extirpation, the seat may be cauterized with stick nitrate of silver, chromic acid, or acid nitrate of mercury. I prefer silver. The wound is to be kept open until the hemorrhage has ceased. The skin is then secured by four or five ligatures. Some surgeons put a suture through the thyroid cartilage. It is not necessary. The natural inward motion of the severed edges, and the swelling from inflammation, tend to bring them together in the proper line, even if, during coughing, they occasionally override. The wound may be further secured by adhesive straps, and covered with a compress, wet with water or carbolic acid. The patient is then put to bed, and allowed sips of cold water, or morsels of ice. The swallowing soon becomes difficult, and continues so a few days. Still liquid food can be taken, and milk is an excellent article of diet. The after treatment is based on general principles or on the expectant method, and crises are to be met as they arise. If there is intense laryngitis, with effusion, so as to impede respiration, the wound may be reopened and the tracheotomy tube introduced. In the eight reported cases it has not been even indicated.

CASES.

Case I. Miss Anna M. Jewell, American, school-teacher, residing in Pepperell, Mass., consulted the writer Sept. 14, 1865, on account of a complete aphonia, which had existed for three years. The laryngoscope immediately revealed a physical cause for the difficulty, in the shape of a neoplasm extending across the glottis from right to left. It appeared as a sessile oblong, bluntly digitate tumor, of the size of a split bean. On Sept. 29, the diagnosis was confirmed. Two methods of removal were suggested at the outset; first, by laryngoscopic surgery; second, by laryngotomy. The first method was employed for several months with the result of removing about one-third of the growth.

Fig. IV. — Represents the actual appearance and size of the growth removed by laryngoscopic surgery.

This was accomplished mainly with a Leiters forceps, modified so as to cut upon a horizontal surface. (Fig. V.)

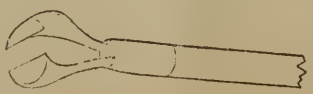

Fig. V.

The slow removal was practised until March, 1866, and was relinquished for laryngotomy, the appearance of the increased growth being something as in Figure VI.

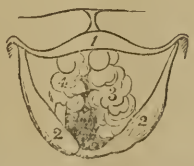

FIG. VI.—1, epiglottis. 2, arytenoid cartilages. 3 and 4, the growth.

March 30th, 1866, the polypi was removed by laryngotomy, at Pepperell.

The patient was placed in a low, wooden, old-fashioned arm-chair, with the front legs elevated about four inches on blocks of wood. (Fig. I.) The back of the chair reached to the shoulders, so that the head would be easily bent backwards on a pillow. When the patient was completely etherized, steadying the parts with the fingers of the left hand, I made, with a curved bellied scalpel, an incision about three inches in length, from the hyoid bone downwards. Then with director knife point and handle, and fingers, the tissues were cut and retracted, until the hyoid-thyroid membrane, the thyroid cartilage, the thyro-cricoid membrane, the cricoid cartilage and three uppermost tracheal rings were laid bare. The crico-thyroid artery was tied. Some ten or fifteen minutes were then spent in waiting for the complete cessation of hemorrhage, which was inconsiderable. The thyroid cartilage not proving ossified, the sharp point of one arm of a small pair of scissors, curved on the narrow edge, was inserted, with the concavity upwards, in the median line of the crico-thyroid membrane, until it disappeared up to the shoulder in the larynx. A single closure of the scissors sufficed to lay open the larynx. The parts were then held apart by

two assistants, with the two-tined blunt hooks. They answered perfectly.

At the instant of opening the larynx the air rushed in with a whizzing noise. Coughing was excited, but ceased after the expulsion of a considerable quantity of blood, which was propelled through the opening to the distance of several feet in front. After the coughing the respiration was very tranquil. The larynx was quiet and manageable, very fixed, probably from the hooks, and partly from the fact that a warm moisture was maintained in the room by evaporation from water contained in a large tin pan placed on the stove that heated the chamber.

The growth was readily removed in a few pieces, by seizing with forceps and excising with scissors curved on the side and edge.

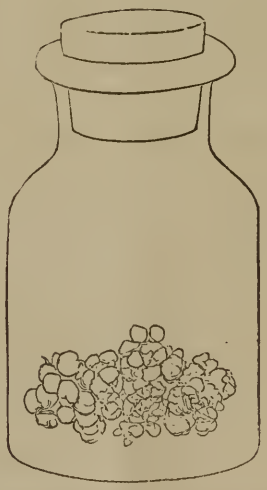

Fig. VII. — Represents the actual size of the growth removed by Thyrotomy.

The opening was repeatedly cleansed of blood and mucus by means of small cubes of moistened sponge, held in forceps. The etherization was maintained at

intervals through the opening. After my associates had inspected the parts, and concurred as to the completeness of the ablation, the seat of the growth was freely touched with solid nitrate of silver. The hooks were withdrawn, the wound held together, and breathing was found to be easily maintained through the mouth; thus proving the correctness of the supposition on which the operation was based, viz.: the facility of respiration after the growth is removed.

The patient was allowed to recover from the etherization, and we waited for the hemorrhage or other untoward event. On return to consciousness vocalization in a whisper was easily effected. The two parts of the several thyroid cartilages overrode each other alternately, with each phase of the respiration. They were not united with a suture, on the supposition that the sewing of the skin and the compression of adhesive straps and inflammatory exudations would naturally hold them together. This supposition proved to be correct. Five interrupted silk sutures and adhesive straps sufficed to close the wound. The patient was placed in bed, a piece of cork was put in between the teeth, and a dry compress laid in contact with the wound.

The case progressed favorably. In fourteen days the patient rode out in a carriage.

May 3. The rima glottidis was seen to be small. Upon the right vocal cord, near the thyroid insertion, was a small prominence. This subsequently disappeared.

May 30. Two months from the operation, phonation was restored, and has remained until the present time, Sept., 1871. This record shows that the removal of the laryngeal growth was conducted to a successful issue without the use of tracheotomy or tracheotomy tube. [1] For the full account see the American Journal of the

Medical Sciences, Jan., 1867, permission to use the case having been kindly allowed by Mr. Lea.]

Case II. Mrs. S. K., of Vernon, Ct., operated on by Dr. P. W. Ellsworth, of Hartford, Ct., Feb. 19th, 1867 [published in the Medical and Surgical Reporter, Philadelphia, Vol. xvi., No. 12, p. 234]. She was thirty-six years of age. For seven years previous to the above date she had a hoarseness, quickly followed by constant aphonia. There were cough, pain in chest and dyspnœa. A sense of suffocation, especially for the last three years, increasing and always coming on at night, when spontaneous, but instantly excited by walking or talking, and rendered worse by the recumbent position. There was a valvular sound or expiration resembling the noise made by uncorking a bottle, but much fainter; deglutition normal; dyspnœa much increased by light pressure on larynx. About Feb. 9th, 1867, she had one attack of dyspnœa so severe as to render her unconscious, and apparently dead for a brief time. There was expectorated a pint of florid blood, relieving the congestion, and thus apparently saving life, though very alarming. Dr. A. R. Goodrich, of Vernon, Ct., saw her at that time. He at once came to the conclusion that there was an unnatural growth, or obstruction, in the larynx and trachea. Dr. S. visited Dr. Ellsworth at his office, in Hartford, and, on the relation of the case, the latter gentleman coincided with the diagnosis. He writes, "Circumstances prevented my visiting Mrs. K. until Feb. 19th. The laryngoscope was applied to the fauces, and permitted a fine view of the upper part of the larynx. A fleshy mass, light colored, and much resembling in shade the surrounding parts, was seen protruding into the rima glottidis, rising and falling with each expiration and inspiration. The portion seen appeared to be about the size of

the end of the forefinger and to completely plug the glottis. Respiration was excessively labored, and but little air could pass." It appeared to be very rash to attempt removal of this body through the mouth, for the parts were of course very sensitive and unaccustomed to any manipulations. Moreover, the size of the polypus and the extent of adhesion not being fully known, there was danger of impacting it in the fissure, producing instant death; and had it been torn off by the probang, it is questionable whether death might not have resulted, as in the 28th case of Dr. G. Buck's list." [Trans. Am. Med. Association, Vol. VI. p. 533.] It was decided to operate by the extra-laryngeal operation, Mrs. K. herself *expressing a wish* that an external incision should be made, fearing the effects of any application to the glottis. "Mrs. K. was placed in a common chair, with her face to the window, her eyes being protected from the sunlight. Her head rested on the breast of an assistant, who also steadied it by his hands. On throwing back the head, the dyspnœa was much increased by the pressure on the larynx, so that it was very distressing. No anæsthetic was given, for fear that the already oppressed breathing might cease altogether." The same exposure was made as in Case I., except the three upper tracheal rings. "As the respiration was so painful, without wasting time to stanch the blood, I opened the crico-thyroid ligament, split up the thyroid cartilage a half inch, and pried open the fissure with the handle of the scalpel, so as to admit air. The cartilage cut readily. On making the first incision, the polypus had shown itself as low down as the bottom of the thyroid cartilage, but on completing the incision it pressed into the wound. Separating the sides of the wound, it appeared nearly filling the larynx, and extend-

ing from the crico-thyroid ligament to a point above the notch in the upper part of the larynx. It was readily seized by small polypus forceps, and as its attachment was by a small and long pedicle it was very easily and completely detached. The operation up to this point occupied about eight minutes. Painful as it was, the patient expressed herself as suffering nothing in comparison with the distress of the night of the 9th, when she nearly perished of suffocation. The polypus had probably sprung from the left upper vocal cord. It is of a fleshy consistence, and rough, with large, flat granulations, vide Fig. VIII., which was cut from a

Fig. VIII.

life-size photograph, very skilfully executed by Webster and Popkins, Photographers, 297 Main Street, Hartford, Ct. Its measurements were fifteen-sixteenths of an inch in length, and nine-sixteenths of an inch in diameter.

"It was not considered advisable to have any definite opening into the larynx for the purpose of respiration." The wound was closed by adhesive straps only.

"29th. Mrs. K. is entirely well, voice perfect, and she expands her chest from the bottom with an ease and sense of refreshment delightful to her. The whole wound is healed by the first intention, and our patient is able to attend to her household duties."

This case, however differently it might have been treated we need not here discuss, shows the value of the laryngoscope in diagnosis, and the safety of performing

the extra-laryngeal operations without tracheotomy or tube. Dr. Ellsworth was not aware of the modified operation when he operated. He is therefore justly entitled to a credit of originality in simplifying the operation. Indeed, one is amazed at his boldness, when it is remembered that he performed the operation at his very first visit, after using the laryngoscope for the very first time in his life, and without any precedent known to him! We cannot characterize this procedure as rashness, as the doctor writes: "I was led to study up the subject by the death of a little boy in that neighborhood (that is, of Mrs. K.), who was taken to New York, but the case was not there clearly made out, and no operation was attempted. I think now the boy might have been saved." At any rate, I determined, if another case presented, there should be some cutting before the case was given up."

Case III. Occurred in the practice of Dr. Louis Elsberg, of New York city, a most eminent laryngoscopist of this county. The subject was a man of about twenty years of age. The growth lined the whole inside of the larynx, causing complete aphonia and impeding the respiration. The extent, character, and obstinacy of the neoplasm were deemed sufficient reasons for its removal. The restoration of the voice was a secondary consideration. The modified operation, as suggested by myself, was performed Aug., 1867. The details were very nearly the same as in Case I., except that chloroform was employed. The growth proved to be malignant. It was carefully, thoroughly, and cleanly dissected off with scissors, and the seat freely touched with the liq. ferri persulphatis, full strength. Some sloughing resulted. The patient survived the operation six months afterwards, but with dyspnœa relieved.

The happy results in phonation of Cases I. and II. were not realized in this case. This was anticipated from the malignancy of the tumor and from the vocal bands being buried in the abnormal growth. However, the *operation* was successfully performed without tracheotomy or the tracheotomy tube. Probably at some future time Dr. Elsberg will favor the profession with the details of the case, which was interesting, as the only precedent known was Case I. The writer was gratified to have the modified operation tested by so high an authority as Dr. Elsberg.

Case IV.

Philadelphia, July 9, 1868.

My dear Doctor: — Herewith I give you a few details of a case (unpublished) in which I performed laryngotomy for the removal of a fibroid tumor, without having previously performed tracheotomy.

The patient was a German, twenty-six years of age, of light complexion, in apparent good health, and good pluck.

On July 12th, 1867, at five P. M., I performed the operation, with the assistance of Drs. Levis and Collins, of this city, and in presence of the several medical gentlemen. Ether was administered, and the patient laid flat upon a table, the head and shoulders a little elevated. The tumor was removed with forceps and scissors, the thyroid cartilage having been divided by a bistoury in its entire extent, and held asunder by two steel eyelid elevators. No stitch was taken in the cartilage, and the external wound was closed by three wire sutures, supported by narrow strips of adhesive plaster, and covered with a dry dressing.

The patient coughed and expectorated blood, air

being expelled from the upper part of the wound in coughing.

I ordered steam to be kept up from time to time, by bringing into the room, every hour or two, a bucket of hot water in which some pieces of heated iron had been thrown.

The following are the notes in my case-book: —

10 P. M., pulse 80; had slept two hours.

July 13th, 8 A. M., patient sitting up; slept well last night; no pain; a little bulging of everted skin at upper part of wound from expulsion of air; coughs but little; speaks in a good rough, hoarse voice.

1 P. M., doing well; pulse 85.

7.30 P. M., some fever; pulse 108; no gaping of wound.

July 14th, 11 A. M., slept well; pulse 79.

9 P. M., doing well; pulse 62.

July 15th, 9 A. M., doing well; pulse 80, ordered a purge.

4.30 P. M., pulse 72.

July 16th, 10 A. M., pulse 72

5 P. M., pulse 70; swallows well; occasionally expectorated bloody sputum. Removed remaining sutures; told patient he might take a walk around the square after tea.

July 19th, able to resume his business, that of a journeyman ladies' shoemaker.

You will notice that the patient sat up from the very morning succeeding the operation, and that within a week he was at work. The wound healed kindly, in great measure by first intention, but for a long time there was a sinus, the size of a probe, from the upper portion directly into the larynx. . . . . .

Yours truly,

J. Solis Cohen.

Case V. Mr. Albert Litch, Cambridgeport, Mass., is large, well-developed, and muscular. Born in 1814. Complexion, dark; temperament, nervous; health, excellent during most of his life. Except in a paternal aunt, who died at eighty years of age, there has been no cancer in the family. Attributes his laryngeal trouble to inveterate and constant smoking of tobacco. In April, 1864, he was attacked with hoarseness without taking cold. For three subsequent years he ran the gauntlet of regular and irregular practitioners, without a correct diagnosis, and without relief.

In April, 1867, he was brought to the notice of the writer by Dr. John Hart, of Boston. An examination with the laryngoscope revealed a sessile tumor, occupying the whole upper surface, and free edges of the left vocal cord, and a small portion of the right vocal cord near the thyroid insertion.

After unsuccessful attempts to remove the growth through the mouth, it was decided to do so by thyrotomy. September 26, 1867, the extra-laryngeal operation was performed in the presence and with the assistance of Drs. Elsberg, of New York city, E. A. Perkins, of Boston, Allen, of Cambridgeport, Abbott, of Woburn, and Mr. A. H. Shurtleff, of Boston. The patient was seated in a common, old-fashioned wooden arm-chair, with a straight back. The chin was shaved, and the person in undress. The etherization rendered him violent and pugilistic. At Dr. Abbott's suggestion, he was secured by a leather strap, passed around him and his chair.

Pulse 80; full and strong.

During the dissection, there was some embarrassment, from the fact that the larynx was in constant motion from continual efforts to swallow. The thyroid cartilage was ossified. After the hemorrhage had ceased,

the lower blade of a bone forceps (Fig. IX.) was entered through the crico-thyroid membrane, exactly in the median line, until it was two-thirds concealed. A for-

Fig. IX. — Forceps employed, actual size.

cible closure severed the isthmus of the thyroid cartilage cleanly. The up and down movements here ceased, fortunately. The growth was completely revealed. On the left cord it appeared in the form of minute lobal excrescences, occupying the inner edge and lower surface, like a fringe. On the right cord it was similar, but only covering the anterior half. It was removed by scissors, and the site cauterized with the acid nitrate of mercury.

As the patient regained his consciousness, he spoke in a harsh, coarse, and resounding voice, so as to be heard all over the house, showing unmistakably the effectiveness of the removal. This kind of phonation lasted several hours, and then he became aphonic.

Pulse not affected.

The recovery was not retarded.

Oct. 2d. Patient went down stairs.

" 8th. Phonation coarse and clear.

" 17th. Under the laryngoscope everything appeared normal, except a slight œdematous protuberance towards the thyroid extremity of the left vocal cord.

Oct. 23d. The vocal cords have their normal, pearly sheen.

There was some adhesion of the cicatrix to the trachea, which was removed by subcutaneous section.

At the present time, September, 1871, there is a

return of the growth, fringing the cords in serrated protuberances, but not enough to cause aphonia. The phonation is slightly hoarse, and not very noticeable. It does not interfere with the performance of active duties in photography.

Case VI. Nov. 22d, 1867. Dr. L. Elsberg, of New York city, operated on the lady (whose previous history has been published in the Trans. Am. Med. Association for 1866), for the complete removal of a laryngeal growth by laryngotomy. The essential features of the case were analogous to those already related. No tracheotomy or tube was employed. The recovery was perfect. The phonation, and even cantation, is now complete. This case was exhibited at a meeting of the Am. Med. Association, which was held in Washington, 1868.

Case VII. Mrs. J. J., of Bolton, Mass., twenty-four years of age. Married one year; no children. Nervous and lymphatic temperament. About four years ago lost her voice from a severe cold, and never regained it.

No dyspnœa, except on exertion. Some dysphagia. Most troublesome symptom is constant swallowing day and night.

On examination with the laryngoscope, foreign growths were found in the larynx, on both sides, above the vocal cords. Posteriorly below the vocal cords, and in front of the œsophagus was a sessile, whitish, papillated, and warty excrescence, which probably caused the constant swallowing.

Some chloride of gold was applied to the growths, with a little relief, for a few times. On account of the constant swallowing, the sessile nature of the growths, and the position of the large growth below the vocal

cords, it was advised to remove them by a section of the thyroid cartilage.

January 28, 1871, at Bolton, the operation was performed, with the assistance of Drs. Spaulding, of Groton, and Eames, of Bolton. The larynx was opened, the growths were uncovered, and removed as far as possible. The thyroid and cricoid cartilages were unusually large. The thyroid notch was to the left of the median line. The growths were tough, purplish, papillated, and extended into the substance of the laryngeal tissues. The growth below the vocal cords was very difficult of removal, on account of the constant swallowing.

The patient came out of the operation well, breathing easily. No tracheotomy tube was employed. The wound healed. At the present time the voice is not restored, and there was not much benefit from the operation.

Case VIII. Woburn, Mass., April 23, 1869. Frances Melindy, aged fifteen years. Complete aphonia for three months. Laryngoscope showed epiglottis prone. By great care and watching, a foreign growth was discovered in the larynx. One view only was obtained, but it was positive. At the second sitting, on the 25th, the growth was rediscovered. It was on the left side, sessile, and near the thyroid insertion of the vocal cords. Subsequently, it was found to be sub-glottic entirely. The rima-glottidis would close cleanly and clearly, with no appearance of the growth.

The effect of the discovery of the growth upon the patient was severe. Being of a very excitable, nervous temperament, she was very much distressed. She could hardly eat or sleep, and paced her apartment for hours at a time.

Attempts to remove by the mouth were futilized by

the prone epiglottis, the gagging, and the patient's refusal to submit. The proposal of removal by thyrotomy was immediately accepted, and there was great impatience in waiting, so much so that it was found injurious to delay longer.

May 1st, 1869, the operation was performed. Present, Dr. L. Elsberg, of New York city, J. Solis Cohen, of Philadelphia, Drew, Abbott, and Clough, of Woburn.

The patient was placed in a rocking-chair, elevated on a platform a few inches high. The operation was conducted in the usual manner. There was little hemorrhage. A burza, such as is described by Hyrtle, was found over the thyroid cartilage. The position of the thyroid cartilage was higher than any gentleman present had noticed before. The notches above and below were very shallow, making the isthmus quite broad. The tumor was found attached to both sides. It was not large. It was cut in two by the scissors when severing the thyroid isthmus. The larger moiety was towards the right. Under a Tolles one-fifth in objective it presented the following characteristics: Epithelium, granulæ, nuclei, fibres, elongated nucleated cells.

The growth being removed, the patient was placed in bed. The wound closed with five of Cutter's metallic sutures, adhesive straps, and a compress. There was a little flagging of the pulse, which was relieved by wine. Swallowing good.

May 2d, A. M. Passed a quiet night. Ate orange, apple, and drank milk. No cough. Air emerged through the wound twice or thrice, and then ceased to do so. Aphonic, but not so complete as before operation. By pouring hot water in small quantities over heated iron or bricks, the atmosphere was filled with steam. It was found, however, that the steam annoyed the patient, and it was stopped, with no bad result.

P. M. Patient comfortable and smiling.

3d, A. M. Pulse 84. Swallowing good. Wound looking well. Patient desires to get up and go down stairs. No medicine given or required. Had one slight choking spell.

P. M. Lively and wants to eat. Finds the most relief in sucking the juice of oranges. Sleeps well; pulse 80.

4th. Wants to get out of her "nest." "Hungry as a bear." *Been talking out loud* to-day.

5th. Very comfortable.

6th. Removed sutures. Wound healed by first intention. *Voice quite loud and much improved.* Wants her doctor to let her alone.

10th. Doing well. This day she spat up a small portion of *what proved, under the microscope, to be a part of the tumor.* At the time of the operation I was not satisfied with the amount obtained, and noticed an absence of the tumor on the left side of the larynx, where the laryngoscope had shown it mainly to be. There was a pedicle, which was excised. The fact was that the scissors, in severing the cartilage, cut the growth in two. A portion *fell down into the trachea, lodged somewhere below, and was retained ten days before expectoration!* An argument adduced in favor of the use of the tracheotomy tube in this operation, is to avoid the danger of choking that might result from just such an occurrence as this. In this case such a fear is proved to be groundless, and that a fallen growth did not do so much harm as is feared.

12th. Sang to-day.

June 16th. Tumor reappearing, left side. Some aphonia.

Aug. 3d. No tumor. Vocal cords clear. Sings well. Voice good.

1871, Sept. 7th. Patient in good condition. Voice good. Sings.

Case IX. July 3d, 1871. Alma F. Cowan, of Amesbury, Mass., was born a healthy child, Oct. 22, 1868. Soon after she commenced to cry, and continued to cry almost incessantly for three months. This crying was probably the cause of the trouble which followed. At this time she ceased to cry, being able only to utter a hoarse, whistling sound. Growth good and hearty still. The hoarseness increased until March, 1871, when her breathing became short and difficult. She was painted with iodine over the throat and on the chin till it was sore. Under this treatment she improved. Soon after, she choked up again.

July 3d. She was brought to my office in Boston for examination. She was etherized, and the tongue held out with the fingers, covered with a towel. The smaller-sized circular laryngoscope was introduced. The fauces were filled with saliva and mucus. On cleaning it away with a sponge, by great care and patience, a growth was three times distinctly seen. The breathing was comparatively easy at this time. Having had a case of a girl, eighteen months of age, in which the growth was equally voluminous, and which *entirely* and *spontaneously disappeared*, I advised waiting a month before interference. She was taken home, but grew rapidly worse. Suffocation was impending; there was great distress and anxiety, such as is usual where the breath is very much impeded. The angles of the mouth were drawn down. The intercostal spaces and the skin over the epigastrium and hypochondriac regions was drawn in at each inspiration. At times there was lividity of the face.

On July 18th, while under ether, the trachea and larynx were laid open. When the thyroid cartilage was sev-

ered, there was a collapse on to the growth which caused a complete stoppage of the air, and the breathing ceased. A suitable tracheotomy tube was introduced, and the breathing re-established. The larynx was held apart by the two-tined blunt hooks and the growth removed as far as possible by forceps and scissors. The growth was very voluminous, considering its situation. It penetrated into the substance of the laryngeal tissues. There was considerable hemorrhage from the cut surfaces of the growth. On account of the small calibre of the air-passages, it was deemed advisable *in this case* to use the tracheotomy tube. The ease and comfort in breathing were very marked.

One hour after the operation she asked for cold water, and swallowed with facility. In fact, she had no trouble with swallowing. Appetite good. Diet, eggs, ice-cream, lime-water and milk. Slept well that night, though there was some difficulty in the management of the tube until the attendants became accustomed to it. There was no fever or severe cough.

The tube was removed on Sunday, July 30. The air passed freely by the larynx.

Aug. 2d. At my visit this day, the little patient met me in the door-way with smiles. The wound was well healed. The breathing good; voice aphonic.

Great credit is due to the kind and unremitting attention of Dr. Sparhawk, of Amesbury, and Dr. Howe, of Newburyport.

The following letter from the father gives an idea of her condition: —

"Aug. 21, 1871. My little girl is getting along very well. She eats and sleeps well. Has gained in looks and flesh a great deal. But she breathes hard yet, and makes considerable noise. . . . . Folks that come in say that she talks much louder, but I cannot say so."

Sept. 4th. "My little girl has had a great many

changes since I wrote you last. She would be middling well for a day or two, then quite bad and breathe very hard." . . . . From this account it is inferred that the growth has returned, and the condition is critical.

Sept. 13th, the child died.

RESUMÉ.

Case.	*Operator.*	*Date.*	*Result to life and phonation.*
1.	Cutter.	March 30, 1866.	Successful.
2.	Ellsworth.	Feb. 19, 1867.	"
3.	Elsberg.	Aug. 1867.	Unsuccessful.
4.	Cohen.	July 12, 1867.	Successful.
5.	Cutter.	Sept. 26, 1867.	Partially.
6.	Elsberg.	Nov. 22, 1867.	Successful.
7.	Cutter.	Jan. 28, 1871.	Partially.
8.	Cutter.	April 23, 1869.	Successful.
9.	Cutter.	July 18, 1871.	Unsuccessful.

The above eight cases are the only ones known to have been performed, according to the writer's suggestion, *without tracheotomy or the tracheotomy tube.* As far as the operation was concerned, they were successful. On these grounds the writer presents his suggestion to the profession for consideration, viz.: —

In the operation for the removal of growths in the larynx by section of the thyroid cartilage, to hold the use of tracheotomy and the tracheotomy tube as a reserve measure.

In the above recorded *nine* attempts only *one case* required the tube. To diminish the amount of section of tissues and use of appliances simplifies the operation, and is claimed to be an improvement which bespeaks attention.

The list of thyrotomy cases for the removal of laryngeal growths now numbers forty to fifty cases, including the above (Knight).

NOVEMBER 1, 1871.

MONOGRAPH

THYROTOMY,

OR

THE REMOVAL OF LARYNGEAL GROWTHS

MODIFIED

BY

EPHRAIM CUTTER M.D.

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